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a predictive network which, depending on the state of the furnace and information regarding changes in production over time, defines various set point values assigned to furnace actuators;

means for storing operator set points corresponding to manual operation of furnace actuators under preselected conditions;

fuzzy logic controller means running a fuzzy logic control algorithm and connected at a plurality of respective inputs to the sensors, image means, predictive network, and operator set points storing means, the controller means generating a plurality of output signals for respective actuators that will control melting in the furnace in accordance with objectives defined by the operator set points; and

the predictive network further including means for learning operating laws of the furnace during a learning phase, wherein the learning means defines the laws of furnace operation, selectively from actual furnace operation, or by simulation of furnace operation using a mathematical model.